JOHN SPELLMAN Governor



STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

7272 Cleanwater Lane, LU-11 • Olympia, Washington 98504 • (206) 753-2353

MEMORANDUM March 6, 1984

To:

Tom Eaton

From:

Art Johnson al

Subject:

Results of Priority Pollutant Analyses on Water and Sediment

Samples Collected January 17, 1984 from the Blair Waterway

Tote Facility Dredge Spoils Crib, Tacoma

Attached are the results of EPA Manchester laboratory's partly completed analyses on some of the dredge spoils samples Dale Norton and I collected for Jim Krull January 17, 1984. The accompanying sketch shows where each sample was collected. The water samples were surface grabs; sediment samples were cores 3 to 4 feet in length.

Phthalate esters (PAE), phenolic compounds, and polyaromatic hydrocarbons (PAH) were detected in both water samples. Trace amounts of dichloroethane were detected in one sample. The PAE data should be disregarded since these compounds were also measured at high concentrations in both blanks. Individual PAH (11 compounds detected) and phenols (pentachlorophenol and dimethylphenol detected) were present at low concentrations; i.e., less than 2 ug/L. EPA criteria for protection of marine life are 300 ug/L for PAH (acute toxicity) and 34 ug/L for pentachlorophenol (chronic toxicity). There are no saltwater criteria for dimethylphenol—the freshwater criterion is 2,120 ug/L (acute toxicity).

Most historical data(1) on discharges to Commencement Bay waterways and on surface waters within the waterways are based on higher detection limits for PAH (1 to 10 ug/L) than employed by EPA for these water samples. Therefore, PAH have shown up in relatively few samples, primarily those from Kaiser ditch, Lincoln Avenue south drain to Blair, and seeps at Pennwalt and Occidental. Concentrations have been between I and 10 ug/L. EPA did not detect PAH in a 1980 survey(2) of Blair and Hylebos surface waters using a 0.5 ug/L detection limit.

⁽¹⁾ Johnson, A., et al., 1974. A Summary of Priority Pollutant Data for Point Sources and Sediment in Inner Commencement Bay. WDOE.

⁽²⁾ U.S. EPA, 1980. Commencement Bay/Port of Tacoma Field Survey, June 3, 1980.

Memo to Tom Eaton
Results of Priority Pollutant Analyses on Water and Sediment Samples Collected January 17, 1984 from the Blair Waterway Tote Facility Dredge Spoils Crib, Tacoma
March 6, 1984
Page Two

We recently received data from Cal Analytical Laboratory in Sacramento on 16 discharges to Commencement Bay waterways (storm drains, ditches, and creeks) Dale Norton sampled in September 1983. A 0.1 ug/L detection limit was used. PAH were detected in six of the discharges. Of these, only in Kaiser Ditch were more than one or two compounds present. Kaiser Ditch had individual PAH in the 1- to 8-ug/L range. Other discharges had less than 1 ug/L of individual PAH.

Based on this limited data, water in the dredge spoils crib appears to have a PAH content in the intermediate range of that known to occur in discharges to Commencement Bay waterways. The crib was ice-covered and the spoils had long sat undisturbed when we collected these samples, so suspended solids and therefore perhaps PAH were at a minimum.

An estimate of the amount of PAH released to Blair Waterway if all the crib water were released is 0.07 pound. This estimate is based on approximate crib dimensions of 550 x 365 feet, an average water depth of 1 1/2 feet, and an average total PAH concentration of 3.75 ug/L. By way of comparison, the PAH loads WDOE have measured in Kaiser ditch have ranged between 0.044 and 0.12 pound/day.

The limited priority pollutant data from the EPA Manchester laboratory on the composite sediment sample show only trace amounts of benzene, ethylbenzene, toluene, and trichloroethylene to be present. The hazardous substance analyses of crib water and composite sediment show traces of a few compounds. I think the high acetone concentration in the sediment sample comes from our having used acetone to clean the spatulas we used to manipulate the sediment samples.

I expect to receive the remainder of the data on these samples within the week.

AJ:cp

Attachments

Sketch of dredge spoils crib for Blair Tote facility project showing locations of MDOE samples collected January 17, 1984.



STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504 • (206) 459-6000

T0:

Merley McCall - Art Johnson

FROM:

D. Huntamer - Chemist

SUBJECT:

Orgainic Analysis of Blair Waterway Water and

Sediment Samples, Tacoma, WA

DATE:

February 27, 1984

Four water and five sediment samples were received from WDOE, Olympia at the EPA Region 10 Laboratory on January 23, 1984. Analysis requested was for a priority pollutant scan on the water samples and the one composite sediment sample. The remaining four sediments were analyzed for acid/base-neutrals. The results of the acid/base-neutral organic analyses are attached. Results for VOA's, PCB's PCBD's, pesticides and metals will be sent when completed.

EPA#	WDOE#	
03501	ęsa.	Sediment
03502	One	88
03503	CM4	üe.
03504	, ean	86
03505	the	Composite sediment
03506	TOTAL STATE OF THE	Water
03507	eca	11
03508	594	Water Blank
03509	film	st the state

BASE/NEUTRAL COMPOUNDS

PROJ	JECT: BLAIR Waterway	COMPILED BY: On Blazench DATE: 2-17-86
LABO	ORATORY: EPAREGION X-	compiled by: Jn Blazench DATE: 2-17-86 REVIEWED BY: JB: DATE: 2-17-8
	SAMPLE # :	03506 63507 03508 03509
	UNITS :	49/2 >
-	L0Q :	2-7-84
1.	acenaphthene	0,9 0,400,14
2.	benzidine	0.111
3.	1,2,4-trichlorobenzene	0,141 ->
4.	hexachlorobenzene	Orly >
5.	hexachloroethane	0.14
6.	bis(2-chloroethyl) ether	0.14
7.	2-chloronapthalene	0,14
8.	1,2-dichlorobenzene	0.121
9.	1,3-dichlorobenzene	0.14
10.	l,4-dichlorobenzene	0,14
11.	3,3'-dichlorobenzidine	
12.	2,4-dinitrotoluene	0.1u
13.	2,6-dinitrotoluene	$\begin{vmatrix} 0.2u \end{vmatrix} - \begin{vmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1$
14.	1,2-diphenylhydrazine (as/azobenzene)	0.24
15.	fluroanthene	The same of the sa
16.	4-chlorophenyl phenyl ether	AL.

BASE/NEUTRAL COMPOUNDS (continued)

PROJE	ECT: Clain Waterway COMP RATORY: EPAREGION X REVI	ILED B	Y: 0	n Gl	szur	ch	DATE:	2-1-	7-84
LABO	RATORY: EPA REGION X REVI	EWED B	Y: -61	728.	0	iden unsatuusi gangasada.	DATE:	2 -1	7-84
	SAMPLE # :	03506	03507	03508	03 500	} .		·	
	UNITS :	19/2)3V,	'l			
	L0Q :								
17.	4-bromophenyl phenyl ether	0,24			S				
18.	bis(2-chloroisopropyl) ether	0,14	1						
19.	bis(2-chloroethoxy) methane	Oili			5>				
20.	hexachlorobutadiene	0.14			->>				
21.	hexachlorocyclopentadiene	0.3/4			S				
22.	isophorone	0.14		·	>				
23.	napthalene	Olla			->>				
24.	nitrobenzene	Olas			->>				
25.	N-nitrosodimethylamine					porter and the second			
26.	N-nitrosodiphenylamine	Oba			>				
27.	N-nitrosodi-n-propylamine	0,34				and the second of the second of			
28.	bis(2-ethyl hexyl) phthalate	54,	(63)	(29)	(19)				<u> </u>
29.	butyì benzyl phthalate	0.14			3	PORTO PROPERTY CONTRACTOR AND			
30.	di-n-butyl phthalate	(2.3)	(2,9)	(0.3)	(0,3)	and anticolorum of the first feet feet that the control to the con			
31.	di-n-octyl phthalate	(1,2)	(2,2)		0,8	CTD VATORNAS SAMPLES STOMAN			
32.	diethyl phthalate	0,14				\$\$P\$\US: m~negrangemente est	THE PLAN SERVICE SERVI	- And College Cons. Co.	
33.	dimethyl phthalate	0.14			->				
34.	benzo(a)anthracene (0,2	(0,2)	Oslar	\rightarrow	dente en			
35.	benzo(a)pyrene	0.14			>	en meneral and an independent			
36.	3,4-henzofluroanthene				alternative and	ner Olive v nemen general gene			
<u>37.</u>	hemso(b) fluoranthene and/n. benzo(k)fluoranthene	0.36	O,lu		->>	en e			
38.	chrysene	0,36,	03	0, 1 ₄	->_ '				

BASE/NEUTRAL COMPOUNDS (continued)

PROJEC	IT: <u>Blain Walerway</u> COI LITORY: <u>EPA Region X</u> REV	ILED BY:	Blazevich	DATE: 2-17-84
LABORA	TORY: EPA REgion X REV	MED BA:	are i	DATE: 2-17-89
•	U			
	SAMPLE # :	03506 03507 0	3508 03509	
	UNITS :	Wa/0 -	5>	
No. of the last of	L0Q :			
39.	acenaphthylene	0.1)(0.753)	0.14	
40.	anthracene	0.2 (0.17)		
47.	benzo(ghi)perylene	0,24		
42.	fluorene	0,2,0,10	0,14 >	
43.	phenanthrene	0,4)0,251		
44.	dibenzo(a,h)anthracene	0,34		
45.	ideno(1,2,3-cd)pyrene	0,24		
46.	pyrene	0.9(0,5)	Olla >	
47.	TCDD		ND ND	

LABORATORY: EPA REgion X	COMPILED BY:	91	1 Blizer 1 Blizer	uh	DATE _	2-17	7_84
LABORATORY: EPA REgion X	REVIEWED BY:	<i>U</i>	TRI O		DATE _	2-17	~F4
CAMOLE # .							<u> </u>
SAMPLE # :		03201/0	350803509				
UNIIS :	ug/l						
L0Q :							
1. benzoic acid	0.34						
2. 2-methylphenol	0.14						
3. 4-methylphenol	0.14						
4. 2,4,5-trichlorophenol	0,14						The second secon
5. aniline	ND		>				
6. benzyl alcohol	0.14						
7. 4-chloroaniline	ND						
8. dibenzofuran	Oilm						
9. 2-methyl naphthalene	Ola						
10. 2-mitroaniline	ND			***************************************			
11. 3-nitroaniline	ND						
12. 4-nitroaniline	ND			MOVE THE THE PROPERTY OF THE P			
13. acetone							
14. 2-butanone				Miller of Selection (management)		enganismus silvensiam nikusilisia	
15. carbon disulfide							
16. 2-hexanone						Microsoma (* n.	
17. 4-methyl 1-2-pentanone			e Calainte ann an Airm Annaidh a calainte agus i reighr chann Canaidh ann an Airm an Airm Annaidh ann ann an A	Mary Mary Angle An	-		
18. styrene			en e	-,-		marik, di igini dajin, smrijadi (ili) militari	COLUMN SCHOOL SC
19. vinyl acetate					-		-
20. o-xylene							

ACID COMPOUNDS

PROJECT: Blais Waterways LABORATORY: EPA REGION X	COMPILED BY:	M Blown	DATE:	2-17-84
LABORATORY: EPA REgion X	REVIEWED BY:		DATE: _	2-17-84
V	•			
SAMPLE # :	035060350	7 03508 03509		
UNITS :	ug/l -			
L0Q :	[0 '			
1. 2,4,6-trichlorophenol	0.14 -			
2. p-chloro-m-cresol	0.14			
3. 2-chlorophenol	0,14			
4. 2,4-dichlorophenol	0,141			
5. 2,4-dimethyl phenol	0,7,0,9	Dolla >		
6. 2-nitrophenol	10,1W -			
7. 4-nitrophenol	0,341			
8. 2,4-dinitrophenol	0.8u -	+		
9. 4,6-dinitro-o-cresol	0.64 -			
10. pentachlorophenol	0,98 0,5	0,24		
ll. phenol	Olu -			

TENTATIVELY IDENTIFIED COMPOUNDS

PROJECT: Blain Water Way COMPILED BY: SM Blaneurch DATE: 2-17-84

LABORATORY: EPA REgion X REVIEWED BY: COMPILED BY: DATE: 2-7-84

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ACIU N B FRACTION S	SAMPLE # :	03506	03407	03503	03509	1	
		4/	4/20				
CAS # N	VAME			/10	15	 	
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171-5	phenol.	otmate 0,8 ug/e.	46/0	ND	ND		
84	9.10-anthracene-	estimat	1		ı		
265-1	dione	10,5,	ND				
526	2.3 rdimethyl	estimit	estent	}			
375-0	phenol	1.4	1198				
576	2.6-dimethial	14 1	1	1			
426-1	phenol	0,4	0,4				
229	01 11 1	Till the	estma				
587-8	Phenol 2, 6 - dimethyl phenol Phenol Phenol Phenol Phenol	ND	estma 0,3 ug/l	1	11/		
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10.					. 8	}	

PROJECT: Blin WWY WOOF COMPILED BY: On Blazevich DATE LABORATORY: EPAREgion X REVIEWED BY: ODATE:	2-24-84
SAMPLE # 03505 03506 03507 03508 03509	
UNITS ug/Kg ug/L	
LOQ 2-8-84 2-13-84 >	
1. acrolein 104 104 104 104	
2. acrylonitrile 5454545454	
3. benzene 2m 2u 2u 2u 2u	
4. carbon tetrachloride 241	
5. chlorobenzene	
6. 1,2-dichloroethane	
7. 1,1,1-trichloroethane	
8. 1,1-dichloroethane 2m	
9. 1,1,2-trichloroethane	
10. 1,1,2,2-tetrachloroethane	
11. chloroethane	
12. 2-chloroethylvinyl ether	
13. chloroform	A POST OFFICE AND DESCRIPTION OF THE PROPERTY
14. 1,1-dichloroethylene	ndddid fyrfol actificau ar o'i Actificau ddd ddi ganlly ndyn ym ar o'n ar o'i ar o'i ar o'i ar o'i ar o'i ar o
15. 1,2-trans-dichloroethylene	
16. 1,2-dichloropropane	
17. 1,3-dichloropropylene	
18. ethylbenzene 2m	
19. methylene chloride 24 V	
20 methyl chloride 10 m 10 m 10 m 10 m 10 m	
21. methyl bromide $2M 2M 2M 2M 2M$	
22. bromoform	

VOLATILES (Continued)

PROJECT: Blan Www/WDMEO	MPILED BY: ABLANDATE: 2-24-83 IEWED BY: DATE: 2-24-8-
LABORATORY: EPAREGION X REV	IEWED BY: DATE: 3-3 1-E-
<i>U</i>	- C 2 + 0
SAMPLE # :	0395 0350603507 03508 03509
UNITS :	46/13/19/1
LOQ :	
23. dichlorobromomethane	2M 2M 2y 2M 2y
24. trichlorofluoromethane	
25. dichlorodifluoromethane	
26. chlorodibromomethane	
27. tetrachloroethylene	
28. toluene	(2m)
29. trichloroethylene	(2m) 2m
30. vinyl chloride	2m V V V

NON-PRIORITY POLLUTANT HAZARDOUS SUBSTANCES LIST COMPOUNDS

PROJECT: Blain Why WDGE COMPI LABORATORY: EPA REGIONX REVIE	LED BY:	M Blos	ench		DATE _	2-24	-14
LABORATORY: EPA REGIONX REVIE	WED BY: _	d.			DATE _	2-24	-84
SAMPLE # :	03505 03	506 03507	0358	03509			
UNITS :	Makaug	7/2 -		~>			(
LOQ :	0 0 0				SALES CONTRACTOR CONTR		
1. benzoic acid							
2. 2-methylphenol	The state of the s			g (et militar (the green me experience and green secure	acioni cinamente e consideramento co		
4-methylphenol				******************			
4. 2,4,5-trichlorophenol				Acceptance and a second a second and a second a second and a second a second and a second and a second and a	A CONTRACTOR OF THE CONTRACTOR		
5. aniline							
6. benzyl alcohol							
7. 4-chloroaniline							-
8. dibenzofuran			The second se				
9. 2-methyl naphthalene				And the second dispersion of the second			-
10. 2-nitroaniline				A CONTRACTOR CONTRACTO			
11. 3-nitroaniline							
12. 4-nitroaniline			Octoon manifests in the control of t				
13. acetone	(260)	24 24	24	(3),			
14. 2-butanone	(4)	and the same of th	4	am	•		
15. carbon disulfide	211			211			
16. 2-hexanone				1			
17. 4-methyl 1-2-pentanone		VV	V				:
18. styrene	NDI	1D ND	ND	ND			
19. vinyl acetate	ND	ND ND		<u> </u>			
20. o-xylene	(2m)	an 2m	24				

TENTATIVELY IDENTIFIED COMPOUNDS

anaisa PA : W	00001 1		0.04.55
PROJECT: Blan Wwy WDGE COMPILED BY:			
LABORATORY: EPAREgion X REVIEWED BY:	all D	DATE:	2-24-84
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VOA FRACTION:	SAMPLE	# :	1250E	03506	1750	man	02000		
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State of	
Washington	
Department of Exology	-
OF Exology	

OLYMPIA ENVIRONMENTAL LABORATORY

DATA SUMMARY

PAGE	OF	
ORIGINAL T	0: LAB	FILES
cories Tó:	1/	V

SOURCE Blair DATE COLLECTED //	- Dreo	lge Sp	ooils 1	Crib, To	aco ma	CMA	3A	Dale	Nor	lòn
DATE COLLECTED //	7-84	<i>T</i> /		COLLE	ECTED BY	D. 1	Norton	 1		***********
Sample (Log) Number										
Station: Walor	#(#2								The second section is the
pH (units)	8.9	8.8								
Turbidity (NTU)										
Sp. Conductivity (umhos/cm)	8,320	7,800								
COD		//-								
BOD (5 day)				WOOF	is N	11/=	EDAH	1		
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NO3-N				1000	14-0	196 =	ErA	0350	7-	*****
NO2-N										
NH3-N										-
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Total PhosP										
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NOTE: All results are in mg/L(ppm) unless otherwise specified. ND is "None Detected"

"<" is "Less Than" and ">" is "Greater Than"

ECY 040-2-32 Rev. 9/81.